REMARKS

After entry of the present amendment, claims 3, 4, 6-19 and 28 are pending. Claims 1, 2, 5 and 20-27 and 29-39 have been canceled without prejudice. Claims 11 and 14 are allowed.

In a May 2, 2003 Office action, claims 1-4, 6-10, 12, 13, 15-19, 27 and 28 were rejected on various grounds including 35 U.S.C. § 112 second paragraph, § 102, and § 103(a). Reconsideration and withdrawal of the rejections are respectfully solicited in view of the foregoing amendments and the following remarks.

Applicants request that the Patent Office forward a copy of the initialed Information Disclosure Statement. Such a copy was indicated as being enclosed on the Office action summary page, but no such copy was received. Please also note that the filing date for this application is May 3, 2003 as indicated on the Notification of Acceptance of Application Under 35 U.S.C. § 371, not May 4, 2003 as indicated on the cover page of the Office action.

For your convenience, Appendix A provides the claims in co-pending Application No.: 09/743,492. Appendix B contains a partial English translation of reference C5, and applicants request that it be considered. A supplemental Information Disclosure Statement is also being filed with this response, and applicants request consideration of the references listed on the attached PTO/SB/08A.

I. EXPLANATION OF AMENDMENTS TO THE CLAIMS

Support for the amended claims is found throughout the specification. The present amendment introduces no new matter, and is made without prejudice.

The amendments to claims 3, 15, 16 and 19 find support at page 41, lines 24-26. Claims 15 and 16 have been amended to recite a method for generating "monoclonal" antibodies. Claims 15 and 16 find support at page 41, line 9, to page 42, line 10, and at page 42, line 16, to page 43, line 6. Claim 19 finds support on page 43, lines 8-26. Claims 8 and 17 have been amended to recite "about," finding support at page 38, line 24. Support for amended claim 28 is found on page 49, lines 20-24.

Most of the claim amendments are purely formalistic in nature, *e.g.*, correcting for grammar, or amending dependencies, *e.g.*, due to cancellation of claims 1, 2 and 5, and do not narrow the scope of the claims. For example, the amendment to claim 3 has not narrowed its scope.

Applicants reserve their right to pursue the subject matter of any original or added claims or unclaimed subject matter in related applications.

II. THE REJECTION UNDER 35 U.S.C. § 102 SHOULD BE WITHDRAWN BECAUSE THE STREULI REFERENCE FAILS TO TEACH A MONOCLONAL ANTIBODY IMMUNOREACTIVE WITH AN INTRACELLULAR DOMAIN OF A PHOSPHATASE SUBUNIT OF LAR

The Patent Office maintained the rejection of claims 1-4, 6-10, 12, 13, 15, 19, 27 and 28 under 35 U.S.C. § 102 as allegedly anticipated by Streuli et al. (EMBO Journal, 11: 897-907, 1992), and extended the rejection to claim 3. The applicants respectfully traverse.

A. Streuli Teaches Neither a Monoclonal Antibody That Binds to an Intracellular Domain of a Phosphatase Subunit of LAR Nor Such An Antibody That Further Fails To Bind To CD45

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." M.P.E.P. § 2131. An antibody "specifically immunoreacts" with a particular protein or part thereof when the antibody immunologically binds that protein or part thereof, but fails to appreciably cross-react with other proteins. Claim 3, for example, recites a "monoclonal antibody that specifically immunoreacts with an intracellular domain of a LAR phosphatase subunit, wherein the antibody does not cross-react with CD45." Streuli does not teach each and every element of the claims, in part because Streuli does not disclose a monoclonal antibody that binds to the intracellular domain of the phosphatase subunit of LAR.

1. Streuli Does Not Disclose a Monoclonal Antibody That Binds to an Intracellular Domain of a Phosphatase Subunit of LAR

Streuli discloses monoclonal antibodies that bind to the extracellular subunit (E-subunit) of LAR, but does not disclose monoclonal antibodies to the phosphatase subunit (P-subunit) of LAR. The P-subunit comprises the intracellular domain. As explained in the previous Office action response, Streuli discloses that the E-subunit of LAR is "composed of three Ig domains and eight FN-III domains." (See p. 898, Col. 1.) Streuli then discloses that "antibodies that bound only to LAR were specific to the LAR FN III domains." (Id. at Col. 2.) In Fig. 1 of Streuli, a schematic illustration of LAR is provided. That schematic illustrates the eight FN III domains of the E-subunit as small hatched boxes. That same figure reveals that there are no such domains in the P-subunit, the subunit that comprises the intracellular domain.

Streuli also discloses "mAbs," or monoclonal antibodies, that specifically recognized both a LAR-LCA hybrid, or fusion, protein and LAR. (See p. 898, Col. 2.) With respect to this less specific class of antibody, Streuli states that "mAbs that bound to both the LAR-LCA hybrid and LAR were specific to the LAR Ig domains." (Id.) Again referring to Fig. 1 of Streuli, the Ig domain is schematically illustrated as a loop structure. Consistent with the text, the E-subunit of LAR is shown to have three Ig domains. The P-subunit, in contrast, is shown to lack any Ig domain. Therefore, the antibodies of Streuli that are taught as being specific for LAR are, in fact, specific for the FN III domains of the E-subunit and do not bind to the P-subunit. The antibodies of Streuli that are taught as being specific to both the LAR-LCA hybrid and to LAR are, in fact, specific to the Ig domains of the E-subunit and do not bind to the P-subunit.

2. Streuli Teaches Monoclonal Antibodies That Fail To Bind CD45, But They Also Fail To Bind the Intracellular Domain of LAR

On page 3 of the Office Action, the Patent Office pointed to the anti-LAR monoclonal antibodies in Fig. 1 of Streuli and alleged that some of them also fail to bind CD45. However, as already discussed above, those antibodies disclosed by Streuli bind to the E-subunit of LAR, and do not bind to the intracellular domain of the P-subunit as recited in claim 3. Accordingly, Streuli does not account for all the limitations of the present claims.

B. The Limitations Specific To Claim 4 Do Not Extend to the Other Claims, and SEQ ID NO: 1 Does Not Encode Ig or FN III Domains

Dependent claims inherit the limitations of the claims from which they depend. Similarly, claims that do not depend on other claims do not inherit the limitations of those other claims.

The Patent Office based part of its argument on claim 4, a dependent claim, ***from which no other claim depends***. Claim 4 recites a SEQ ID NO: 1. The Patent Office alleged that SEQ ID NO: 1 encodes a 1897 amino acid that includes Ig domains and FNIII domains. However, SEQ ID NO: 1 **does not** encode either Ig domains or FNIII domains, and encodes 607, not 1897 amino acids. SEQ ID NO: 1 encodes a portion of LAR starting from the end of the transmembrane region and including the entire cytoplasmic region. *See, e.g.*, the specification at page 38, lines 13-17. Inspection of Fig. 1 also shows that the region encoded by the LAR P-subunit does not include either Ig-like domains or FNIII-like

domains. Accordingly, even if other claims depended from claim 4, which they do not, Streuli still would not serve as anticipatory prior art.

C. The Rejection of Claims 27 and 28 Have Been Rendered Moot

To expedite prosecution, Claim 27 has been canceled without prejudice, reserving the right to pursue to such claims in related applications. Claim 28 now depends from claim 3, inheriting its limitations, and is allowable for the reasons already discussed and discussed below in respect to claim 3. Accordingly, the rejection of the claims under 35 U.S.C. § 102 is improper and should be withdrawn.

III. CLAIMS 12 AND 13 HAVE BEEN AMENDED RENDERING THE REJECTION UNDER 35 U.S.C. § 112, SECOND PARAGRAPH MOOT

On page 4 of the Office action, claims 12 and 13 were rejected under 35 U.S.C. § 112, second paragraph for allegedly failing to particularly point out and distinctly claim the subject matter that applicants regard as their invention. Claims 12 and 13 have been amended to depend on claim 3. Accordingly, the rejection should be withdrawn.

IV. THE REJECTION UNDER 35 U.S.C. § 102 SHOULD BE WITHDRAWN, BECAUSE TAKEUCHI TEACHES AN ANTIBODY THAT BINDS TO CD45

On page 4 of the Office action, the Patent Office rejected claims 1, 2, 4, 6, 27 and 28 under 35 U.S.C. § 102(b) as allegedly anticipated by Takeuchi, *et al.* as allegedly evinced by Streuli (discussed above). The applicants respectfully traverse.

Claim 3, which was not rejected in view of Takeuchi, recites a "monoclonal antibody that specifically immunoreacts with an intracellular domain of a LAR phosphatase subunit, wherein ***the antibody does not cross-react with CD45.***" Takeuchi teaches ***an antibody that reacts with CD45***, and such an antibody would not fall within the scope of the present claims, regardless of whether the antibody disclosed by Takeuchi reacted with LAR.

Claims 4, 6 and 28 have been amended to depend from (and include the limitations of) claim 3. Claims 1, 2 and 27 have been canceled without prejudice. Accordingly, the rejection has been rendered moot and should be withdrawn.

V. THE REJECTION OF CLAIMS 15 AND 16 UNDER 35 U.S.C. § 102 AS ALLEGEDLY ANTICIPATED BY EITHER AHMAD REFERENCE HAS BEEN RENDERED MOOT BY THE AMENDMENTS TO THE CLAIMS

Claims 15 and 16 have been amended to recite a method for generating monoclonal antibodies. As neither Ahmad reference teaches a method for generating monoclonal antibodies as claimed, the references cannot anticipate the present claims.

VI. THE REJECTION UNDER 35 U.S.C. § 103 SHOULD BE WITHDRAWN AS THE PRIOR ART FAILS TO TEACH OR SUGGEST ALL THE CLAIM ELEMENTS MAKING A PRIMA FACIE CASE OF OBVIOUSNESS IMPOSSIBLE

On page 5 of the Office action, claims 1-4, 6-10, 12, 13, 15-19, 27 and 28 were rejected under 35 U.S.C. § 103 as obvious over either Ahmad reference in view of Streuli. The applicants respectfully traverse the rejections.

None of the cited references alone or in combination teach or suggest a monoclonal antibody that binds to the intracellular domain of a LAR P-subunit, wherein the antibody also fails to cross-react with CD45. The Office alleged that the LAR P-subunit is involved in controlling diabetes and obesity, but the Office failed to state a use for monoclonal antibodies immunoreactive with the intracellular domain of the LAR P-subunit, but that also fail to cross-react with CD45. A role of the LAR P-subunit in obesity and diabetes does not in and of itself provide a motivation for producing the claimed antibodies. The Office also failed to state the likelihood of success of producing the claimed antibodies. Accordingly, a *prima facie* case of obviousness cannot be established.

A conclusion that the claimed antibodies are non-obvious is also proper because these antibodies have unexpected properties not before reported for anti-LAR antibodies. *See* M.P.E.P. § 716.02. The present applicant reports that a monoclonal antibody, *e.g.*, YU1, that specifically immunoreacts with the intracellular domain of the P-subunit of LAR "specifically recognizes cancerous thyroid cells distinct from normal thyroid cells," page 49, lines 20-24. *See also* Example 5, beginning on page 45, line 24; Example 6, beginning on page 47, line 24; Example 7, beginning on page 49, line 5.

Accordingly, the rejection under 35 U.S.C. § 103 should be withdrawn.

VII. A DOUBLE PATENTING REJECTION BASED ON CO-PENDING APPLICATION NO. 09/743,492 IS IMPROPER, BECAUSE THE CLAIMS IN THE TWO APPLICATIONS ARE PATENTABLY DISTINCT, AND NOT OBVIOUS VARIATIONS OF EACH OTHER

On page 6 of the Office action, claims 1-4, 6-10, 15-19, 27 and 28 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10, 12-13 and 15-19 of co-pending Application No. 09/743,492. The applicants respectfully traverse.

The examiner in the co-pending application has indicated that the claims pending in application No. 09/743,492, as shown in Appendix A, are allowable. The antibodies claimed in the two applications are not identical. The antibodies of the co-

pending application do not render obvious those of the present application, because antibodies that can react with two different proteins, do not render obvious antibodies that react with one protein, but not with another.

The claims in the present application are directed to monoclonal antibodies that ***specifically immunoreact*** with an intracellular domain of a LAR phosphatase subunit, wherein the antibodies ***do not cross-react with CD45***. In contrast, the claims of Application No. 09/743,492 are directed to monoclonal antibodies having ***specificity to both*** an intracellular domain of ***LAR and*** an intracellular domain of ***CD45***. The antibodies claimed in the two applications are accordingly not the same antibodies. In one application, the antibodies are specific for LAR, but do not cross-react with CD45. In the other application, the antibodies are specific for both LAR and CD45.

An antibody is specific for one or more antigens, and will, by definition, not appreciably cross-react with other antigens. At the bottom of page 6 to the top of page 7 of the Office action, the Patent Office alleged that claim 3 "does not say whether the antibody cross-react[s] with any other phosphatases." However, by stating that an antibody specifically immunoreacts with a particular protein, LAR, claim 3 is stating that it does not appreciably cross-react with other phosphatases.

The Patent Office also alleged that claim 15 is a species of claim 17 of co-pending Application No. 09/719,272. Claim 17 in the co-pending application has been canceled, rendering the rejection moot. The remaining method of producing antibody claims in the two applications are distinct for the same reasons explained above regarding the antibodies themselves.

CONCLUSION

The applicants respectfully request prompt reconsideration of the pending claims. Claims 3, 4, and 6-19 and 28 are believed to be in condition for allowance in view of the foregoing amendments and remarks. Withdrawal of the rejections and allowance of the claims are respectfully solicited.

The examiner is invited to contact the undersigned at the telephone number listed below in order to discuss any remaining issues or matters of form that will move this case to allowance.

A petition and fee for a one-month extension of time accompany this paper; the fee for the attached Information Disclosure Statement is also provided. No other fees are believed due. However, the Commissioner is hereby authorized to charge any fee deficiency, or credit any overpayment, to Deposit Account No. 13-2855 of the undersigned.

Respectfully submitted,

By: 

Kurt T. Buechle
Reg. No. 54,011
MARSHALL, GERSTEIN & BORUN
6300 Sears Tower
233 South Wacker Drive
Chicago, Illinois 60606-6357
Tel.: (312) 474-6300
Fax: (312) 474-0448

Dated: September 2, 2003